

TABLE A-1. MASTER PLAN COSTS
Kōke'e and Waimea Canyon State Parks Master Plan and EIS

PROGRAM	PLANNED IMPROVEMENTS	UNIT	COST ESTIMATE		TOTAL	PHASING				RECREATION RESIDENCES
			QUANTITY	UNIT COST		2007-2010	2011-2015	2016-2020	2021-2025	
CIRCULATION										
ENTRY GATE - mile marker 6.5										
	Entry Booth	sf	100	\$200	\$20,000	\$20,000				
	Support Building - Relocate Exising Park HQ Building	ls	500	\$40	\$20,000	\$20,000				
	Building Renovation	sf	500	\$100	\$50,000	\$50,000				
	Paved parking area - 5 stalls	sq. yd.	225	\$60	\$13,500	\$13,500				
	Card-activated vehicle control gate.	ea	1	\$10,000	\$10,000	\$10,000				
	Paved by-pass lane. 12' width, 2" AC and 4" UBC, 800 l.f.	lf	800	\$150	\$120,000	\$120,000				
	Retaining Wall. Moss rock finish. 100 l.f.	lf	100	\$800	\$80,000	\$80,000				
	Landscaping - native vegetation.	ls	1	\$30,000	\$30,000	\$30,000				
	Park Entry Sign	ls	1	\$10,000	\$10,000	\$10,000				
	Information and directional signage.	ea	4	\$1,000	\$4,000	\$4,000				
Subtotal (Entry Gate)					\$357,500	\$357,500	\$0	\$0	\$0	
ROADS										
Arterial Roads - 24 mi <i>Kōke'e Rd.- 12mi, from mile post 7 to Pu'u o Kila. Waimea Canyon Drive- 6 mi, from mile post 1 to mile post 7. Kōke'e Road - 6 mi</i>	Routine Maintenance and Repair	ls	1	\$2,500,000	\$2,500,000		\$625,000	\$1,250,000	\$625,000	
	Stabilize shoulders. (24 mi, 2' wide shoulder, 3" gravel layer)	cu.yd.	4,700	\$50	\$235,000	\$235,000				
	Repair and resurface entire length of Kōke'e Road and Pu'u o Kila Road to Pu'u o Kila Lookout. (from Halemanu, 5 mi) (24' pavement width, 2" AC and 4" UBC pavement for repair section, 1 1/2" AC and 2" cold planing for overlay section, 4" white solid striping @ e.p.)	ls	1	\$2,500,000	\$2,500,000	\$2,500,000				
	Add center line. (4" double solid yellow line, 24 mi)	l.f.	126,720	\$3	\$380,160	\$380,160				
	Add shoulder and centerline reflectors. (40' apart, 24 mi in 1 direction)	ea	9,504	\$7	\$66,528	\$66,528				
	Improve signage at key intersections: Park HQ, lookouts, Makaha Ridge Road, Pu'u ka Pele, Halemanu Road, Faye Road, and Waineke Road.	ea	10	\$500	\$5,000	\$5,000				
	Install guardrails along Waimea Canyon Drive and Kōke'e Road at all locations with shoulder pullovers in proximity to the canyon rim or steep slopes. Guardrail design will follow Kōke'e Design standards developed to enhance park character. Utilitarian guardrails will not be used.	lf	7,400	\$60	\$444,000	\$444,000				
	Develop fuel breaks along roadways with selective clearing setback 40 feet from road edge.				TBD	\$0	\$0	\$0	\$0	
Subtotal (Arterial Rd.)					\$6,130,688	\$3,630,688	\$625,000	\$1,250,000	\$625,000	\$0
Collector Roads - 15,000 LF										
Collector Roads - 15,000 LF <i>(Waineke Rd.- 7,500 LF, up to Berry Flat trail. Makaha Ridge Rd.- 5,000 LF, up to park boundary. Tank Lot Rd.- 2,500 LF, up to 1st intersection.</i>	Routine Maintenance and Repair	ls	1	\$1,000,000	\$1,000,000		\$333,333	\$333,333	\$333,333	
	Correct drainage. (15,000' road length in 1 side, remove dirt from swale)	l.f.	30,000	\$4	\$120,000	\$120,000				
	Re-grade, gravel. (15,000' road length, 24' typical collector road cross-section, 3" gravel layer)	cu.yd.	3,334	\$50	\$166,700	\$166,700				
	Add directional signage.	ea	21	\$300	\$6,300	\$6,300				
	Name Collector Roads into Pu'u ka Pele recreation residential neighborhood.	ea	21	\$300	\$6,300	\$6,300				
Subtotal-Collector					\$1,299,300	\$299,300	\$333,333	\$333,333	\$333,333	\$0
Local Roads - 36,500 LF										
<i>Faye Rd.- 2,500 LF. Halemanu Rd.- 6,000 LF. Mohihi Rd.- 7,000'; Berry Flat trail to park boundary. Other local road within Pu'u ka Pele and Kanaloahuhuhulu residential area- 21,000 LF</i>	Routine Maintenance and Repair	ls	1	\$600,000	\$600,000	\$150,000	\$150,000	\$150,000	\$150,000	
	Correct drainage to local roads serving recreational residences only. (36,500' road length in 1 side)	l.f.	73,000	\$4	\$292,000					\$292,000
	Re-grade and gravel to local roads serving recreational residences only. (36,500' total length, 20' typical local road cross-section, 3" gravel layer)	cu.yd.	6,760	\$50	\$338,000					\$338,000

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			QUANTITY	UNIT COST		2007-2010	2011-2015	2016-2020	2021-2025	
	Improve directional and warning signage. Provide road identification signs, and warning signs for 2-wheel drive vehicles on all local roads.	ea	15	\$300	\$4,500	\$4,500				
	Temporary Condition: Stabilize shoulder area of Halemanu & Kōke’e Road intersection for parking lot only. (10-car capacity, 2" AC, 6" aggregate BC, 1 car = 200 sf)	sq. yd.	222	\$120	\$26,640	\$26,640				
	Permanent Condition: Close intersection shoulder to parking. Develop barrier system using natural materials, such as stone, and restore area to natural, vegetated condition.	ls	1	\$5,000	\$5,000		\$5,000			
	Directional signage.	ls	9	\$300	\$2,700	\$2,700				
Subtotal - Local Roads					\$1,268,840	\$183,840	\$155,000	\$150,000	\$150,000	\$630,000
Service Roads - 11,000 LF										
	Routine Maintenance and Repair	ls	1	\$100,000	\$100,000	\$25,000	\$25,000	\$25,000	\$25,000	
Camp 10 Road (park boundary to end)	Repair Camp 10 Road for public access. (11,000' road length, 16' typical cross-section, 3" gravel layer) Camp 10 Road (park boundary to end)	cu. yd.	1,630	\$50	\$81,500		\$81,500			
Subtotal - Service					\$181,500	\$25,000	\$106,500	\$25,000	\$25,000	\$0
Parking										
	Routine Maintenance and Repair	ls	1.0	800,000.0	\$800,000	\$200,000	\$200,000	\$200,000	\$200,000	
Kukui Trailhead	Kukui Trailhead – Develop new parking lot vacant lot adjacent to the Kōke’e MAS. (18-car capacity, 2" AC, 6" aggregate BC, 1 car = 400 sf including circ.)	sq. yd.	800	\$120	\$96,000		\$96,000			
Halemanu & Kōke’e Road Intersection	Block shoulder and redirect parking to Pu’u Hinahina Lookout using boulder bollards @ 6’ spacing.	ea	40	\$100	\$4,000		\$4,000			
	Directional signage.	ea	1	\$400	\$400		\$400			
Pu’u Hinahina	Expand parking lot to accommodate 40 additional vehicles	sq. yd.	1,800	\$120	\$216,000	\$216,000				
Waimea Canyon Lookout	Develop new parking area at lookout driveway entrance. (60 cars, 6 buses, driveway, landscape, drainage, stop stone)	sq. yd.	4,500	\$120	\$540,000		\$540,000			
	Reconstruct existing parking area as a bus drop-off and handicap parking zone. Remove existing bus parking stalls. Pave new parking area.	sq. yd.	1,500	\$120	\$180,000		\$180,000			
	Install shoulder barriers on Kōke’e Road and lookout drive using unfinished timber or boulders to prevent shoulder parking.	lf	1,600	\$60	\$96,000		\$96,000			
Kanaloahuluhulu Meadow	Expand parking along edge of meadow between the Kōke’e Pailion and Kōke’e Campground. Develop bus parking between the Kōke’e Museum and Picnic Pavilion. Surface with grass pavers.	sq. yd.	3,750	\$72	\$270,000		\$270,000			
	Repave existing driveway from Kōke’e Road to picnic pavilion.	sq. yd.	2,250	\$65	\$146,250		\$146,250			
	Install boulder bollards at edge of driveway and parking area, and to block through-traffic between the visitor area and campground. (3' diameter, 6' spacing)	ea	100	\$100	\$10,000		\$10,000			
Water Tank Trail	Trailhead Parking for 60 cars	sq. yd.	2,675	\$120	\$321,000				\$321,000	
	Landscape screening for parking lot	sq. yd.	540	\$50	\$27,000				\$27,000	
Kaluapuhi Trail	Trailhead Parking for 50 vehicles.	sq. yd.	2,225	\$120	\$267,000				\$267,000	
	Landscape screening for parking lot	sq. yd.	450	\$50	\$22,500				\$22,500	
Awa’awapuhi Trail	Regrade and gravel lot, 30 stalls, 3" gravel	cu. yd.	450	\$120	\$54,000			\$54,000		
	Install shoulder barriers and curb stops around lot perimeter.	lf	200	\$50	\$10,000			\$10,000		
Kalalau Lookout	Expand parking lot to approximately 60 total stalls (triple existing capacity), with paved surface.	sq. yd.	2,675	\$120	\$321,000		\$321,000			
	Resurface spill-over parking lot on Kōke’e Road.	sq. yd.	533	\$120	\$63,960		\$63,960			
Pu’u o Kila	Pu’u o Kila Lookout - reconstruct and restripe parking lot.	sq. yd.	1,375	\$120	\$165,000		\$165,000			
New Lower Elevation Lookout	New lower elevation lookout - paved parking, 26 stalls.	sq. yd.	1,200	\$120	\$144,000				\$144,000	

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		UNIT	QUANTITY	UNIT COST	TOTAL	2007-2010	2011-2015	2016-2020	2021-2025	
	Paved tour bus parking, 4 stalls	sq. yd.	360	\$120	\$43,200				\$43,200	
New Interpretive Trails	Interpretive Trail Parking, 15 stalls - ‘A’ali’i Lowland Dry Shrubland Trail	sq. yd.	675	\$120	\$81,000		\$81,000	\$81,000	\$81,000	
	Interpretive Trail Parking, 15 stalls - Koa Lowland Mesic Forest Trail	sq. yd.	675	\$120	\$81,000					
	Interpretive Trail Parking, 15 stalls - Koa / ‘Ōhi’a Montane Mesic Forest Trail	sq. yd.	675	\$120	\$81,000					
	Interpretive Trail Parking, 15 stalls - ‘Ōhi’a Montane Wet Forest Trail	sq. yd.	675	\$120	\$81,000			\$81,000		
	Interpretive Trail Parking, 15 stalls - ‘Aka’akai / Neke Marsh Interpretive Trail	sq. yd.	675	\$120	\$81,000			\$81,000		
Kaleinamanu Picnic Area	New parking for 50 vehicles.	sq. yd.	2,225	\$120	\$267,000			\$81,000		
Subtotal - Parking					\$4,469,310	\$416,000	\$2,173,610	\$507,000	\$1,372,700	\$0
TRAILS	Improve directional signage at all trailheads and junctions.	ea	22	\$250	\$5,500	\$5,500				
	Install hiker registry boxes at all trailheads.	ea	22	\$200	\$4,400	\$4,400				
	Install boot cleaning stations at all trailheads and at trail junctions leading to primitive recreation zones.	ea	22	\$1,000	\$22,000	\$22,000				
Canyon-Ditch Trail System	Complete upgrade of Black Pipe Ditch Trail and Canyon Trail segments with connection to Pu’u Hinahina. Labor 4 persons, 5 days, @ 8/hr x 15%. (4x\$256 x 5days)	l.f.	4,000	\$24	\$96,000	\$96,000				
	Upgrade and reroute segments of Po’omau Trail as necessary to improve access and avoid land slide areas along canyon rim.	l.f.	13,200	\$24	\$316,800	\$316,800				
	Develop new trailhead facilities at Pu’u Hinahina. See Lookouts section below.	--	--	--	--	--				
Halemanu-Kōke’e Trail	Extend trail across Kōke’e Stream to connect with Maluapopoki Road	lf	650	\$24	\$15,600			\$15,600		
Kukui (2.5 mi) /Iliau Nature Trail (0.25 mi)	Provide trail identification sign on Kōke’e Road.	ea	1	\$500	\$500		\$500 \$1,125 \$2,250 \$10,000 --			
	Restore and expand plant signage on Iliau Nature Trail.	ea	25	\$45	\$1,125					
Awa’awapuhi Trail (3.25 mi)	Restore and expand plant signs and map guide along trail. 3"x5" identification signs.	ea	50	\$45	\$2,250					
	Provide composting toilet at Awa’awapuhi Trailhead.	ea	1	\$10,000	\$10,000					
	See general trailhead comments.	--	--	--	--					
Nualolo Trail (3.75 mi)	Surface existing lot with grass pavers.	sq. yd.	100	\$72	\$7,200			\$7,200		
	Re-grade, gravel, and improve drainage on driveway.	sq. yd.	60	\$72	\$4,320			\$4,320		
Kaunuoehua Ridge Trail System	Water Tank Trailhead - Establish major trailhead for Water Tank Trail at entrance to DOE Discovery Center. See general trailhead comments and parking costs above.	See parking costs above.					\$0			
	Kaluapuhi Trail - Establish major trailhead for Kaluapuhi Trail on Kōke’e Road across from Awa’awapuhi Trailhead. See general trailhead comments and parking costs above.	--	--	--	--	--	--	--	--	
	Provide composting toilet at Kaluapuhi Trailhead	ea	1	\$10,000	\$10,000		\$10,000			
Pihea Trail (3.7 miles)	See general trailhead comments.	--	--	--	--	--	-- \$108,533 \$10,000	-- \$108,533	-- \$108,533	
	Stablize and revegetate eroded ares with native plants.	sq. yd.	6,512	\$50	\$325,600					
	Provide composting toilet at trailhead.	ea	1	\$10,000	\$10,000					
	Construct boardwalk along valley rim between Pu’u o Kila and Pihea Overlook to control erosion.	lf	19,536	\$15	\$293,040					
New Interpretive Trails ‘A’ali’i Lowland Dry Shrubland Trail										
	Develop new ADA accessible trail - 6’ wide	lf	1,800	\$75	\$135,000				\$135,000	
	Develop new parking lot for 15 vehicles. See parking costs above.	--	--	--	--				--	
	Interpretive kiosk	ls	1	\$20,000	\$20,000				\$20,000	
	Interpretive Signage	ea	1	\$3,500	\$3,500				\$3,500	
	Plant & feature identification signage (6"x8" identification signs)	ea	15	\$60	\$900				\$900	
	Develop new ADA accessible trail - 6’ wide	lf	1,800	\$75	\$135,000					
Koa Lowland Mesic Forest Trail							\$135,000			

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Koa / ‘Ōhi’a Montane Mesic Forest Trail	Develop new parking lot for 15 vehicles. See parking costs above.	--	--	--	--		-- \$20,000 \$3,500 \$900								
	Interpretive kiosk	ls	1	\$20,000	\$20,000										
	Interpretive Signage	ea	1	\$3,500	\$3,500										
	Plant & feature identification signage (6"x8" identification signs)	ea	15	\$60	\$900										
	Develop new ADA accessible trail - 6’ wide	lf	1,800	\$75	\$135,000			\$135,000 -- \$20,000 \$3,500 \$900							
	Develop new parking lot for 15 vehicles. See parking costs above.	--	--	--	--										
	Interpretive kiosk	ls	1	\$20,000	\$20,000										
	Interpretive Signage	ea	1	\$3,500	\$3,500										
‘Ōhi’a Montane Wet Forest Trail	Plant & feature identification signage (6"x8" identification signs)	ea	15	\$60	\$900			\$135,000 -- \$20,000 \$3,500 \$900							
	Develop new ADA accessible trail - 6’ wide		1,800	\$75	\$135,000										
	Develop new parking lot for 15 vehicles. See parking costs above.	--	--	--	--										
	Interpretive kiosk	ls	1	\$20,000	\$20,000										
	‘Aka’akai / Neke Marsh Trail	Interpretive Signage	ea	1	\$3,500	\$3,500			\$135,000 -- \$20,000 \$3,500 \$900						
		Plant & feature identification signage (6"x8" identification signs)	ea	15	\$60	\$900									
		Develop new ADA accessible trail - 6’ wide		1,800	\$75	\$135,000									
		Develop new parking lot for 15 vehicles. See parking costs above.	--	--	--	--									
Interpretive kiosk		ls	1	\$20,000	\$20,000			\$20,000 \$3,500 \$900							
Interpretive Signage		ea	1	\$3,500	\$3,500										
Plant & feature identification signage (6"x8" identification signs)		ea	15	\$60	\$900										
Develop new ADA accessible trail - 6’ wide			1,800	\$75	\$135,000										
Subtotal - Trails					\$1,921,335	\$444,700	\$301,808	\$613,853	\$560,973	\$0					
						\$40,000									
OPEN SPACE															
NATURAL RESOURCES															
Forestry	Replace all harvested timber stands with native tree plantings (koa, ohia, sandalwood, kauila, mokihana).				TBD										
	Develop a timber management plan for all park lands.				NA										
	Identify, map, and monitor locations of significant trees within the parks.				TBD										
Hunting	Retain current boundaries and regulations.				NA										
Fishing	Expand fish stocking program at Pu’u Lua Reservoir.	ls	1	\$40,000	\$40,000										
	Extend fishing season.				NA										
Gathering	Develop monitoring and management plan for resource gathering.				TBD						\$5,000	\$5,000	\$0	\$0	\$0
	Develop outplanting program for select native plant species: mokihana, maile.				TBD										
	Replace plum trees as existing plantings cease productivity.	ea	100	\$100	\$10,000										
Subtotal - Natural Resources					\$50,000	\$45,000	\$5,000	\$0	\$0	\$0					
LAND USE															
RECREATION RESIDENCES	Auction all lease lots in 2000 for 20-year term, unless otherwise noted below.				NA										
	Establish “Kōke’e Vernacular” historic character design standards for recreation residence improvements.				TBD										
	Incorporate historic character design requirements into leases for recreational residences rated 3, 4, and 5.				NA										
	Repair all utilities serving recreational residences.	See utility costs below.													
	All new construction in vacant lots according to Kōke’e Vernacular design guidelines.	Cost by lessee			NA										
	Replace large capacity cesspools with wastewater collection and treatment system. Cost by lessee	See utility costs below.													
	Lease lot appraisal.	ea	110	\$1,500	\$165,000										
Kōke’e	Connect lots in well head protection zone to waste water collection / treatment system. 22 lots	See utility costs below.								\$165,000					

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	Select limited number of lots for adaptive re-use for park functions.				NA						
	Retain water tank lots for short-term rental run by concession. Renovation by Lessee. 19 lots				NA						
Halemanu	Auction all lease lots to third party in 2005 for 20-year term.				NA						
Pu'u ka Pele	Auction all lease lots to third party in 2005 for 20-year term.				NA						
Subtotal - Residences					\$165,000	\$0	\$0	\$0	\$0	\$165,000	
KANALOA HULUHULU MEADOW / PARK HEADQUARTERS											
Landscape Improvements	Maintain tree-lined approach to meadow on Kōke'e Road.	--	--	--	--						
	Restore orchard landscape based on historic CCC plantings.	ea	100	\$100	\$10,000						
	Incorporate native plants in the meadow parking area.	sq. yd.	750	\$50	\$37,500						
	Provide cover for public phone booth.	LS	1	\$5,000	\$5,000						
	Provide seating and picnic tables in open space areas.	ea	4	\$750	\$3,000						
Park HQ Building	Relocate building to new park entry gate for use in support of entry fee operations. See parking costs above.	--	--	--	--						
Park Visitor Center	New park visitor center with service counter, display area, office, personnel space, storage space, public restroom.	sf	1,750	\$200	\$350,000						
Kōke'e Lodge	Construct new Kōke'e Lodge Building to improve functions and to comply with Kōke'e vernacular design standards.	sf	3,500	\$200	\$700,000						
	Develop low-maintenance fuel break behind the existing lodge. Excavate, grade, and grass to facilitate mowing. (120'x30')	sq. yd.	400	\$3	\$1,200						
	Improve landscaping between the lodge, museum, and new visitor center /park HQ building.	ls	1	\$25,000	\$25,000						
Kōke'e Museum	Construct new Kōke'e Museum Building to improve building function and comply with Kōke'e vernacular design standards.	sf	3,000	\$200	\$600,000						
	Develop low-maintenance fuel break behind the existing museum. Excavate, grade, and grass to facilitate mowing. (120'x30')	sq. yd.	400	\$3	\$1,200						
	Relocate existing structure during construction to provide temporary facility for continued museum operations.	ls	1	\$25,000	\$25,000						
Kōke'e Picnic Pavilion	Repair stone picnic pavilion and rear BBQ area. Upgrade bathrooms and access to comply with ADA standards.	sf	2,400	\$200	\$480,000						
	Develop low-maintenance fuel break behind the existing structure. Excavate, grade, and grass to facilitate mowing. (120'x30')	sq. yd.	400	\$3	\$1,200						
Kōke'e Campground	Improve directional signage to campsites and surrounding trail connections.	ea	6	\$500	\$3,000						
	Construct an interpretive kiosk with general overview of Kōke'e and Waimea Canyon's natural, cultural, and recreational resources.	ea	1	\$5,000	\$5,000						
	Develop 10 additional campsites, each with water spigot, BBQ pit, and picnic table	ea	10	\$2,500	\$25,000						
	Repair amenities at each campsite: water spigot, BBQ pit, and picnic table	ea	15	\$1,000	\$15,000						
	Reconstruct the campground comfort station to meet ADA accessibility requirements and Kōke'e vernacular design standards.	sf	750	\$200	\$150,000						
Kanaloahuluhulu Ranger Station	Restore and adapt the ranger station for park volunteer housing.	sf	2,000	\$150	\$300,000						
CCC Camp	Continue historic renovation and use as interpretive, education, and research center. 5 buildings	ea	5	\$50,000	\$250,000						

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Kōke’e Baseyard	Restore and adapt the garage and storeroom, carpenter shop, and wood shed for multi-purpose park operations and interpretive purposes.	sf	3	\$50,000	\$150,000			\$150,000		
	Expand existing leach field into the historic baseyard area. Cover leach field using grass pavers to allow continued light vehicle and pedestrian traffic.	ls	1	\$80,000	\$80,000			\$80,000		
New DSP Baseyard	Develop new baseyard facility on Kōke’e Road east of the Water Tank Road intersection to house office space, vehicle parking, non-hazardouse material storage, maintenance and machine shop, fire equipment storage, restroom and shower facilities. 5,000 sf buildings x 3	ea	3	\$250,000	\$750,000		\$250,000	\$250,000	\$250,000	
	Clear and grub baseyard grounds site (80,000 sf)	sq. yd.	9,000	\$3	\$27,000			\$27,000		
	Grade building and parking pad sites (1.5 acres @ 1.5’deep)	cu.yd.	3,630	\$20	\$72,600			\$72,600		
	Gravel heavy equipment parking area. (3" gravel layer over 1 acre)	cu.yd.	400	\$30	\$12,000			\$12,000		
	Construct new baseyard office / warehouse building.	sf	5000	\$75	\$375,000			\$375,000		
	Construct wire fence around facility perimeter.	lf	1,200	\$10	\$12,000			\$12,000		
State Rental Cabins	Maintain existing cabins for short-term rental use.	--	--	--	--	--	--	--	--	
	Improve pedestrian access to Lodge and Museum area.	l.f.	2,000	\$5	\$10,000			\$10,000		
	Replace lasiandra hedge with native shrub species. (1000’x10’)	sq. yd.	335	\$20	\$6,700			\$6,700		
	Develop low-maintenance fuel break behind the cabins. Excavate, grade, and grass to facilitate mowing. (1,000’x30’)	sq. yd.	3,400	\$3	\$10,200	\$10,200				
Infrastructure	Expand existing septic system leach field.	See utility costs below.								
	Place electrical and telephone lines underground.	See utility costs below.								
	Upgrade electrical system	See utility costs below.								
Subtotal - Park HQ					\$4,492,600	\$71,800	\$2,370,500	\$1,725,300	\$325,000	\$0
LOOKOUTS	Replace all cesspools with septic systems.	See utility costs below.								
	Develop potable water systems at each of the four major lookouts.		TBD							
	Improve directional and informational signage.	ea	4	\$5,000	\$20,000		\$10,000	\$5,000	\$5,000	
	Install interpretive signage.	--	--	--	--					
	Improve landscaping.	ls	1	\$50,000	\$50,000		\$25,000	\$12,500	\$12,500	
	Upgrade railings to meet safety standards.									
	Develop “Kōke’e Vernacular” design standard for all built elements.				TBD					
Waimea Canyon Lookout	Develop a new parking lot and bus staging area below the existing parking lot. Relocate bus parking to the new parking area. Redevelop the existing parking area as a pedestrian drop-off and handicap parking only zone. See parking costs above for planned improvements.	See parking costs above.								
	Develop new visitor building that incorporates bathrooms, concession space, and visitor information display.	ls	1	\$800,000	\$800,000		\$800,000			
	Develop new visitor view plaza between the visitor buildings and view platforms.	sq. yd.	1,600	\$200	\$320,000		\$320,000			
	Improve walkways and platform access to comply with ADA requirements. Provide ramp access to the top viewing platform. Construct stairway access to top view platform. Design to intercept the access ramp at landings.	lf	1,200	\$400	\$480,000		\$480,000			
	Redevelop view platforms and rails to comply with park design guidelines.	ls	1	\$350,000	\$350,000		\$350,000			
	Construct an ADA accessible pedestrian pathway connection between the parking lot and view plaza. Construct using concrete or gravel pavers with native fill material.	lf	350	\$250	\$87,500		\$87,500			

TABLE A-1. MASTER PLAN COSTS
Kōke'e and Waimea Canyon State Parks Master Plan and EIS

PROGRAM	PLANNED IMPROVEMENTS	COST ESTIMATE		TOTAL		PHASING				RECREATION RESIDENCES
		UNIT	QUANTITY	UNIT COST		2007-2010	2011-2015	2016-2020	2021-2025	
Pu'u Hinahina	Stabilize / re-vegetate eroded areas around parking lot and canyon rim.	sq. yd.	600	\$50	\$30,000		\$30,000 \$7,000 \$50,000 \$2,000 \$7,500	\$300,000 \$350,000 \$500,000 \$250,000 \$10,500 \$40,000		
	Install interpretive signage.	ea	2	\$3,500	\$7,000					
	Develop lookout plaza at convergence of lookout pathways.	sq. yd.	1,500	\$200	\$300,000					
	Develop new ADA accessible restroom at edge of new lookout plaza.	ls	1	\$350,000	\$350,000					
	Renovate the canyon view platform to comply with ADA requirements and park design guidelines.	ls	1	\$500,000	\$500,000					
	Renovate the Ni'ihau view platform to comply with ADA requirements and park design guidelines.	ls	1	\$250,000	\$250,000					
	Install interpretive signage in central view plaza and at Niihau view platform.	ea	3	\$3,500	\$10,500					
	Improve walkway access from parking lot to comply with ADA requirements.	ls	1	\$50,000	\$50,000					
	Develop trailhead signage for Canyon Trail.	ea	2	\$1,000	\$2,000					
	Install drinking fountain at trailhead.	ea	1	\$7,500	\$7,500					
	Develop low-density picnic area with tables along canyon rim south-west of the existing view platform and into the nearby open-space lot. Connect picnic tables with a pathway from Pu'u Hinahina Lookout.	See picnic costs below.								
	Eradicate non-native vegetation around lookout facilities, stabilize soils and re-vegetate eroded areas with native plant species.	ac	2	\$20,000	\$40,000					
	Clear non-native vegetation to expand space for helicopter landing zone. Revegetate area with koa and associated native understory plants. Provide signage to designate the landing zones as a "no trespassing" area.				TBD					
Kalalau	Expand parking lot to triple capacity. Resurface existing lookout parking lot and bus parking area. Provide dedicated pad site for concession truck.	See parking costs above.				\$44,000	\$15,000		\$350,000 \$140,000 \$200,000 \$30,000 \$0	
	Redesign and expand the scenic lookout to take full advantage of the sweeping views along the cliff face.	ls	1	\$350,000	\$350,000					
	Redesign lookout guardrails to comply with Kōke'e vernacular design standards.	lf	350	\$400	\$140,000					
	Reconstruct walkway access between parking lot and view platform to comply with ADA accessibility requirements.	lf	800	\$250	\$200,000					
	Add covered picnic tables. (10'X10')	ea	6	\$2,500	\$15,000					
	Improve design of lookout turnoff from Kōke'e Road. Develop gateway element to distinguish parking lot from Kōke'e Road continuation.	ls	1	\$30,000	\$30,000					
	Develop a new potable water source and system.	See utility costs below.								
	Install package plant septic system leach field (potential in center lawn of parking area).	ls	1	\$44,000	\$44,000					
	Install new interpretive signage.	ea	2	\$3,500	\$7,000					
Pu'u o Kila	Resurface parking lot and correct drainage problem.	See parking costs above.						\$25,000 \$100,000 \$10,000 \$32,500 \$5,000 \$3,500		
	Improve walkway from parking lot to viewing platform and Pihea Trailhead.	ls	1	\$25,000	\$25,000					
	Renovate viewing platform to provide direct access to Pihea Trail along valley rim alignment.	s.f.	10,000	\$10	\$100,000					
	Add new composting toilets.	ea	1	\$10,000	\$10,000					
	Improve landscaping.	sq. yd.	650	\$50	\$32,500					
	Stabilize eroded rim area and revegetate with appropriate native plants.	sq. yd.	100	\$50	\$5,000					
	Install new lookout interpretive signs.	ea	1	3,500.00	\$3,500					

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Kōke'e and Waimea Canyon State Parks Master Plan and EIS

PROGRAM	PLANNED IMPROVEMENTS	COST ESTIMATE				PHASING				RECREATION
		UNIT	QUANTITY	UNIT COST	TOTAL	2007-2010	2011-2015	2016-2020	2021-2025	RESIDENCES
Lower Elevation Lookout - Mile 4.5	Parking for 26 vehicles	See parking costs above			\$0				\$0	
	ADA accessible pathways	lf	1400	\$100	\$140,000				\$140,000	
	Restroom	ls	1	\$250,000	\$250,000				\$250,000	
	Potable water system				TBD				TBD	
	Install package plant septic system leach field (potential in center lawn of parking area).	ls	1	\$44,000	\$44,000				\$44,000	
	Identification Sign	ls	1	\$5,000	\$5,000				\$5,000	
	Interpretive signage	ea	2	\$3,500	\$7,000				\$7,000	
Subtotal - Lookouts				\$5,062,500	\$44,000	\$2,191,000	\$1,644,000	\$1,183,500	\$0	
PICNIC FACILITIES										
Waipo'o Falls Viewpoint / Picnic Area	Construct ADA accessible walkway and view platform.	ls	1	100,000	\$100,000			\$100,000		
	Replace existing railing with fencing that meets current safety standards and conforms to park design guidelines.	120	120	\$400	\$48,000			\$48,000		
	Pave picnic area driveway and parking lot.	sq. yd.	1,350	\$120	\$162,000			\$162,000		
	Plant landscape buffer between Kōke'e Road and picnic area.	sq. yd.	100	\$50	\$5,000			\$5,000		
	Clear, grade and grass area adjacent to large picnic pavilion for use as a play area.	sq. yd.	3,000	\$15	\$45,000			\$45,000		
	Install interpretive signage at the picnic area and at the view point.	ea	2	\$3,500	\$7,000			\$7,000		
Pu'u Hinahina Lookout Picnic Area	Develop low-density picnic area with tables along canyon rim south-west of the existing view platform.	ea	15	\$2,500	\$37,500				\$37,500	
	Connect picnic tables with a pathway from Pu'u Hinahina Lookout.	lf	1,000	\$100	\$100,000				\$100,000	
Kaleinamanu Ridge Picnic Area	Parking for 60 vehicles	See parking costs above.			\$0				\$0	
	Install picnic 20 picnic tables under shade trees	ea	20	\$2,500	\$50,000				\$50,000	
	Small Picnic Pavilions	ea	3	\$50,000	\$150,000				\$150,000	
	BBQ grills	ea	20	\$1,500	\$30,000				\$30,000	
	Restroom	ls	1	\$250,000	\$250,000				\$250,000	
	Potable water system				TBD				TBD	
	Install package plant septic system leach field (potential in center lawn of parking area).	ls	1	\$44,000	\$44,000				\$44,000	
	Interpretive signage	ea	2	\$1,000	\$2,000				\$2,000	
Subtotal - Picnic				\$1,030,500	\$0	\$0	\$367,000	\$663,500	\$0	
UTILITIES										
Electrical System	Renovate electrical system distribution lines.				NA		NA \$150,000 TBD			
	Place power lines underground in the meadow area.	ls	1	\$150,000	\$150,000					
	Relocate poles, towers, and communication antennae away from areas where they will intrude on scenic views.				TBD					
Wastewater System	Expand the Kanaloahuluhulu leach field into Kōke'e base yard and lawn area adjacent to Park Manager's House to handle periods of high rainfall.	ls	1	\$50,000	\$50,000	TBD NA NA NA NA TBD	\$50,000			\$110,000
	Replace all large capacity cesspools with waste water collection and treatment system. Waimea Canyon Lookout Pu'u Hinahina Lookout Kalalau Lookout Waipo'o Falls Viewpoint / Picnic Area Methodist Camp, Seventh Day Adventist Camp, and United Church of Christ Camp.				TBD					
		ls	1	\$821,000	COMPLETE					
		ls	1	\$350,000	COMPLETE					
		ls	1	\$351,000	COMPLETE					
		ls	1	\$350,000	COMPLETE					
		ls			TBD					
	Connect all recreation residences within the well-head protection zone to a waste water collection and treatment system located outside of the groundwater protection zone (defined by the Waimea Scarp Line). 22 lots.	ls	22	\$5,000	\$110,000					

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PROGRAM	PLANNED IMPROVEMENTS		COST ESTIMATE			PHASING				RECREATION
		UNIT	QUANTITY	UNIT COST	TOTAL	2007-2010	2011-2015	2016-2020	2021-2025	RESIDENCES
	Establish “no build zone” for cesspools based on geology of the area and impacts to water resources.				NA					
Water System	Install water meters for all major user - i.e. Discovery Center, Kōke’e Lodge, Kōke’e Museum, etc.	ea	5	\$7,500	\$37,500	\$37,500	TBD	\$410,000		
System Upgrade & Expansion	Replace existing water transmission and distribution system.	ls	1	\$342,000	\$342,000	\$342,000				
	Extend water transmission lines to Waimea Canyon Lookout	ls	1		TBD					
	Construct a second water tank at the main storage area.	ls	1	\$410,000	\$410,000					
Fire Fighting	Develop Kōke’e irrigation ditch system as non-potable water source for fire fighting.	ls	1		TBD			TBD		
	Develop dip tanks in open areas to provide water supply for fighting wildland fires. 5000-6000 gals	ea	2	\$20,000	\$40,000			\$40,000		
Protection	Establish a Well-Head Protection Zone of 1000 feet for cesspools for potable well sources.				TBD					
Source Development	Continue exploration for potable water source development. Drilling & Testing Water Well for potable development.	ls	2	200,000	\$400,000	\$200,000	\$200,000			
	Develop new potable water source and system at Kalalau Lookout. 1 test well, water transmission and distribution system.	ls	1	350,000	\$350,000				\$350,000	
Communication System	Install solar powered emergency call boxes in locations where historical records of accidents and rescue calls indicate there is need.	ea	4		TBD	TBD				
	Yearly operation & maintenance for solar powered emergency call boxes	ea	4	\$2,600	\$10,400	\$10,400				
Subtotal Utilities					\$1,899,900	\$589,900	\$400,000	\$450,000	\$350,000	\$110,000
TOTAL					\$28,328,973	\$6,107,728	\$8,661,752	\$7,065,487	\$5,589,007	\$905,000